PROJECT TITLE: DIGITAL IC TESTER USING MICROCONTROLLER 8051

In any manufacturing industry there are continuous efforts in cost reductions, upgrade quality and improve overall efficiencies. In electronic industry, with dramatic increase in circuit complexity and the need for the higher levels of reliability, a major contributor cost in any product can be in the testing. However we should recognize in the real world that no product is perfect, so that testing and in particular automatic testing will be an essential part of production in the foreseeable future.

In industries, research centre and college, some common IC's are frequently used; many times people face problems due to some fault in these integrated circuits. So it is very essential to test them before actually using them in any of the applications. Microcontroller based digital IC tester is best solution for these problems.

This project has the capability of testing any available digital IC of the TTL or CMOS family of 24 pins. The main advantage over the industry standard for the project is its low cost and eases of updating to any new IC design which may be inducted in the market by any company only through software updating.

Microcontrollers have become ubiquitous in electronic applications. However the system supported by these devices has become exceedingly complex in terms of functionality and the quantity of peripheral components. In recent years the boundaries of such systems have stretched to include additional peripheral components marking the advent of system-on-chip(SoC). The motivation to develop such devices has been to increase functionality and performance while reducing system cost, integrity complexity and power dissipation.

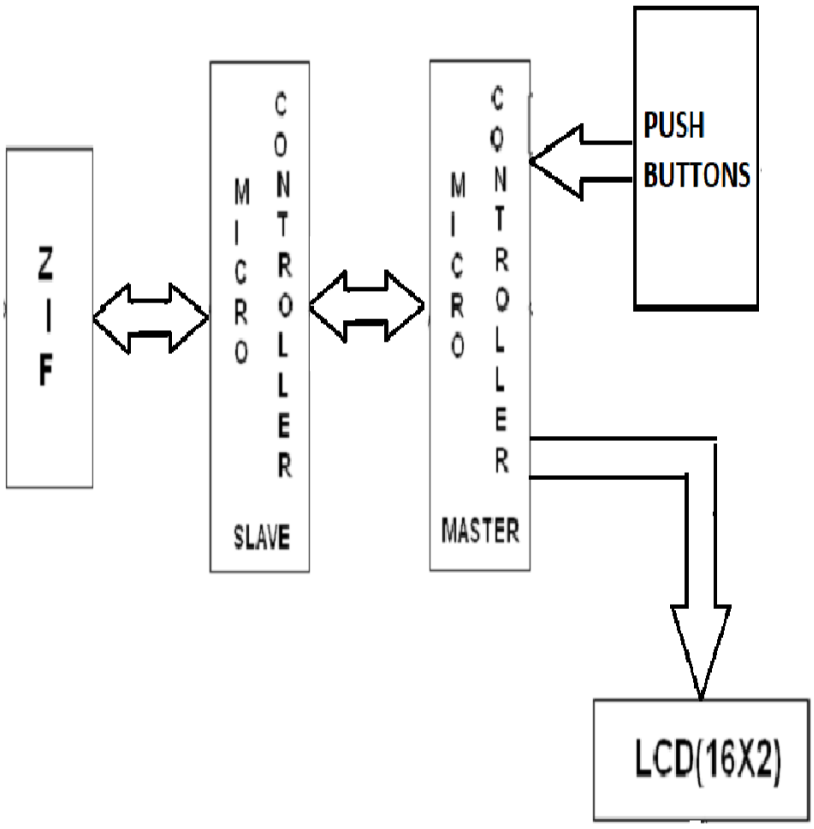
The digital IC tester is implemented in order to test the digital IC’s to verify the faulty gates and the good gates. The necessary inputs to the gates of the IC to be tested which is placed in the ZIF socket is received from the slave micro-controller IC and corresponding outputs are accumulated and sent to the same controller IC where the output is compared with the functional or the logic table and if any discrepancy results, it displays the fail in the LCD display screen. Analog IC tester is also available in the market which was replaced by this digital IC tester which

is more sophisticated by performing the tasks in a much easier fashion and the execution time also very fast in it.

The primary purpose of this digital IC tester is that it can easily check the IC within due course of time and if any discrepancy results then it determines the gates which were good ones and which were the bad ones. The manual operation or a human intervention includes testing of each individual IC by making necessary connections and verifying the outputs for each gate by the truth table is a time taking and tedious process.

And the main advantage of this circuit is that whenever a new IC is to be tested it does not include any addition of hardware but a slight updating in the software code is sufficient enough.

BLOCK DIAGRAM:



CIRCUIT DIAGRAM: